

AMENDMENTS TO THE CLAIMS

Please amend claim 1 as follows.

Please cancel claims 2 and 5 without prejudice.

1. (Currently amended) A method, comprising:
lithographically patterning a corner over a material;
~~selectively removing anisotropically etching~~ portions of the material based on the
lithographic pattern to obtain a region of the material that defines the corner; and
~~further removing isotropically etching additional~~ portions of the material from the
region of the material to sharpen the corner.
2. (Cancelled)
3. (Original) The method of claim 1 wherein lithographically patterning the corner
includes applying a photoresist material.
4. (Original) The method of claim 3, further comprising removing the photoresist
material from selected areas prior to sharpening the corner.
5. (Cancelled)
6. (Original) The method of claim 1 wherein the material comprises a first material, the
method further comprising:
placing a second material in the region; and
removing excess second material from areas outside of the region.

7. (Original) The method of claim 6 wherein removing excess second material comprises using a chemical-mechanical polishing technique.

8. (Original) The method of claim 6, further comprising placing a third material over the second material.

9. (Original) The method of claim 8 wherein placing the third material over the second material and placing the second material in the region comprises using a deposition technique.

10. (Original) The method of claim 8 wherein the first and third materials comprise cladding material, and wherein the second material comprises core material.

11. (Original) The method of claim 1 wherein the corner comprises part of a Y-branch of an integrated optical device.

12. (Original) The method of claim 11 wherein the integrated optical device comprises a waveguide.

13. (Original) The method of claim 1 wherein the corner comprises part of one of a microelectromechanical structure (MEMS) device, a photonic crystal device, or a photonic bandgap device.

14. (Original) The method of claim 1, further comprising monitoring the removal of the portions of the material adjacent to the region if sufficient time has elapsed to sharpen the corner.

15. (Previously presented) The method of claim 14 wherein monitoring the removal of the portions of the material adjacent to the region comprises:

forming a diffraction grating having pillars of a substantially same radius as the corner to be sharpened, wherein the corner is rounded;
illuminating the pillars with a light and detecting light diffracted from the pillars;
removing the pillars concurrently with removing portions of the material adjacent to the region; and

determining if sufficient time has elapsed to sharpen the corner based on the detected light diffracted from the pillars as they are removed.

16. (Original) The method of claim 3 wherein the corner is sharpened while the photoresist is in place.

17. (Previously presented) A method, comprising:

lithographically patterning a corner over a cladding material deposited on a substrate;
based on the lithographic pattern, vertically etching the cladding material to selectively remove portions of the cladding material to define a rounded corner; and
isotropically etching the cladding material to selectively remove additional portions of the cladding material at the rounded corner to sharpen the rounded corner.

18. (Original) The method of claim 17, further comprising depositing a core material in a trench, adjacent to the sharpened corner, which was formed by the vertical etching and by the isotropic etching.

19. (Original) The method of claim 18, further comprising depositing another cladding material over the core material, subsequent to a chemical-mechanical polish process to remove excess core material deposited outside of the trench.

20. (Original) The method of claim 17, further comprising:
forming pillars concurrently with the vertical etching of the cladding material, the pillars having a dimension comparable to that of the rounded corner; and
isotropically etching the pillars concurrently with the rounded corner to determine completion of the sharpening based on light diffracted from the pillars.

21. (Original) The method of claim 17 wherein lithographically patterning the corner includes using a photoresist.

Claims 22-26 (Cancelled).